

the Legislature to be spent, and which is more suited to the probable traffic than would be the sum necessary to make a first-class line. If curves of 10 chains radius were used instead of 5 chains, the appropriation for the whole line would be absorbed by the mountain section alone, and the Colony would be saddled with an unproductive debt, instead of having a paying railway good enough to do much more than the work that will be required of it.

As the country from the twentieth mile to the foot of the incline is dense bush, it has been found necessary to clear away the underbrush to enable the Engineer to set out the final line. This is now being done. The line is also being pegged out, and I trust the field work will be finished by the middle of August. As soon as it is completed, working drawings will be prepared for contract.

#### MANAWATU TO WANGANUI.

Plans of the surveys of 10 miles from Wanganui have been prepared, and will be at once got ready for contract. Mr. Rees is now surveying for the rest of the line.

#### NELSON TO FOXHILL—Length 20 Miles—A. D. AUSTIN, Resident Engineer.

Thirteen miles have been let to Messrs. Scott, Henderson and Co., who have begun work. The remaining length awaits the decision of the Government as to which of two lines is to be adopted.

The first of these skirts the sea coast for some distance, and will be a very expensive piece of work. The other goes inland over a saddle in the hills, and will be much cheaper.

If the sea coast line is adopted, it will add nearly £1,000 a mile to the cost of the whole line; and as this expense is unnecessary, it would be incurred in opposition to the principle which has been followed throughout, of incurring no avoidable expense in the construction of the New Zealand railways.

The inland line will be quite good enough for the probable traffic of the railway as now authorized, or as extended further into the interior. The gradients are heavy, but equally heavy gradients will occur on the extension; while the traffic, as long as the line ends at Foxhill, will be so light that heavy gradients are of little moment.

The ironwork for the larger bridges has been ordered in England.

#### PICTON AND BLENHEIM—Length 19 Miles—A. DOBSON, Resident Engineer.

The works on 17 miles 10 chains of this line are let to Messrs. Brogden, and have been carried on at a satisfactory rate. An extension of the line into Blenheim was authorized last Session, as well as an increase in the weight of rails. This has necessitated a change in the plans of some of the bridges. The cost of the necessary alterations has been agreed on with Messrs. Brogden, and a contract in accordance entered into with them. The extra cost is £3,775, which is within the estimate.

The plans for the extension have not yet been prepared, the Resident Engineer having had his time fully taken up with other work.

#### CANTERBURY RAILWAYS—C. Y. O'CONNOR, District Engineer.

*Addington to Rangiora.*—Length, 18 miles 53 chains. This is now open for public traffic.

*Rangiora to Kowai.*—Length, 13 miles 70 chains. A distance of one mile to the Ashley Bridge is completed; and the bridge is let to Mr. E. G. Wright, who has made arrangements for the delivery of the ironwork from England, and of the timber. The bridge is to consist of fifty spans of 60 feet, two spans of 14 feet 6 inches, and two spans of 13 feet. The lower booms and vertical ties are to be of iron, and the rest of the structure of wood.

The surveys of 9 miles 21 chains of the line beyond the bridge are finished, and the remaining 3 miles 4 chains will be taken in hand at once.

*Selwyn to Rakaia.*—Length, 12 miles 53 chains. This was opened for traffic during the past year.

*Rakaia to Ashburton.*—Length, 17 miles 60 chains. This is let to Mr. E. G. Wright, and is formed up to level of ballast. Rails have lately arrived for it.

The bridge over the Ashburton has also been let to Mr. Wright. It consists of thirty-three spans of 60 feet, and four spans of 14 feet, and is of the same general design as that over the Ashley.

*Ashburton to Timaru.*—The surveys for the first length of 18 miles 29 chains to the north bank of the Rangitata are now complete, and tenders for the construction will be invited at once.

The second length, 19 miles 6 chains, to Young's Creek, was submitted to Messrs. Brogden, but their tender has been declined, and public tenders will be invited. From Young's Creek to Temuka (8 miles 60 chains), the work is let to Messrs. Allan and Stumbles.

This line has some very heavy bridging over the Rangitata, Orari, Opihi, and Temuka Rivers. The Rangitata Bridge will be similar to those over the Ashley and Ashburton; the others will be entirely of timber. Before making designs for the Rangitata Bridge, trial piles of iron and wood were driven and drawn, showing that piling may be safely undertaken on these rivers.

The ironbark wood, of which the piles are to be, is a most excellent timber for the purpose; it resists the blows of the pile-engine as few timbers will, and is very durable.

*Branch Railways.*—Contracts for 58 miles 44 chains have been entered into, and the surveys for the remainder are ready, so that they may be let as soon as rails can be procured.

#### MOERAKI AND WAITAKI RAILWAY.—Length 39 Miles 22 Chains—B. C. ST. JOHN, District Engineer.

The Waitaki Bridge consists of 125 spans of 33 feet. It is founded on cast-iron cylinders 3 feet in diameter, the superstructure being iron plate girders.

The cylinders are being sunk into the shingle by means of Webb's Patent Excavator; but as the expense of this process is very great, I have instructed the District Engineer to try if they cannot be sunk more cheaply by the air process. Delay has occurred in getting the machinery on to the spot, but it is shortly expected there. Should it be found that the excavator is not much more expensive than the air process, it will be an easy matter to hasten the completion of the bridge by multiplying the number of excavators. When done, the bridge will be a sound, durable work. Its cost, even with the use of the excavators, will be within the appropriation.